WHAT IS CLAIMED IS:

1. A method of identifying a clean speech signal from a noisy speech signal, the method comprising:

identifying a set of frequency values that represent the noisy speech signal;

determining parameters of at least one posterior probability distribution of at least one component of a clean signal value based on the set of frequency values without applying a frequency-based transform to the set of frequency values; and

using the parameters of the posterior probability distribution to estimate a set of frequency values for a clean speech signal.

2. The method of claim 1 wherein the set of frequency values for the clean speech signal comprises a set of log-magnitude values.

3. The method of claim 2 further comprising taking the exponent of each of the log-magnitude values in the set of log-magnitude values to produce a set of magnitude values for the clean speech signal.

4. The method of claim 3 further comprising transforming the set of magnitude values for the

clean speech signal into a set of time domain values representing a frame of the clean speech signal.

5. The method of claim 4 further comprising transforming a frame of the noisy speech signal into the frequency domain to form the frequency values for the noisy speech signal.

6. The method of claim 5 wherein transforming a frame of the noisy speech signal into the frequency domain further comprises generating a set of frequency phase values and wherein transforming the set of magnitude values for the clean speech signal into a set of time domain values further comprises using the set of frequency phase values to transform the set of magnitude values.

7. The method of claim 1 further comprising applying a time-based filter to each of the frequency values that represent the noisy speech signal, the time-based filter utilizing at least two frames of frequency values during a single filter operation.

8. The method of claim 7 wherein the time-based filter comprises a Finite Impulse Response filter.

9. The method of claim 5 wherein transforming a frame of the noisy speech signal into the frequency

domain comprises producing a set of more than one hundred frequency magnitude values.

10. The method of claim 1 wherein determining the parameters of at least one posterior probability distribution comprises utilizing an iterative process to determine the parameters.

11. The method of claim 1 wherein determining parameters of at least one posterior distribution comprises determining parameters for each of a set of mixture components.

12. A computer-readable medium having computer-executable instructions for performing steps comprising:

determining a posterior probability based on logarithms of frequency values that represent a frame of a noisy speech signal, wherein a frequency-based transform is not applied to the logarithms of frequency values before the logarithms of frequency values are used to determine the posterior probability; and

using the posterior probability to estimate a frame of a clean speech signal.

13. The computer-readable medium of claim 12 wherein estimating a frame of a clean speech signal

comprises estimating log-magnitude frequency values for the frame of the clean speech signal.

14. The computer-readable medium of claim 13 further comprising taking the exponent of the log-magnitude frequency values to form magnitude values.

15. The computer-readable medium of claim 14 further comprising transforming the magnitude values into time-domain values representing a frame of the clean speech signal.

16. The computer-readable medium of claim 15 wherein transforming the magnitude values comprises performing an inverse Fast Fourier Transform.

17. The computer-readable medium of claim 16 wherein performing an inverse Fast Fourier Transform further comprises using phase values generated by converting the frame of the noisy speech signal from the time domain to the frequency domain.

18. The computer-readable medium of claim 12 wherein determining a posterior probability comprises using an iterative process to determine the posterior probability.

19. The computer-readable medium of claim 12 wherein determining a posterior probability comprises

determining a separate posterior probability for each mixture component in a set of mixture components.

20. The computer-readable medium of claim 12 wherein determining a posterior probability comprises filtering the logarithms of the frequency values over time and using the filtered logarithms to determine the posterior probability.